SUMMARY

S.1 Introduction

This Draft Environmental Impact Report (Draft EIR) assesses the potential for adverse environmental impacts from implementing the Shasta River Watershed-wide Permitting Program (Program) proposed by the California Department of Fish and Game (CDFG) and the Shasta Valley Resource Conservation District (SVRCD). For purposes of this Draft EIR the "Program" is the "Project" being analyzed pursuant to CEQA. The Program Area is the Shasta River watershed, including the Shasta River and its tributaries, in Siskiyou County. **Figure S-1** identifies the Program Area, as well as nearby cities and major roadways in the vicinity of the Program Area.

This document has been prepared in accordance with the California Environmental Quality Act (CEQA) statute and CEQA *Guidelines*.[1] CDFG is the lead agency. Inquiries about the Program and this Draft EIR should be directed to:

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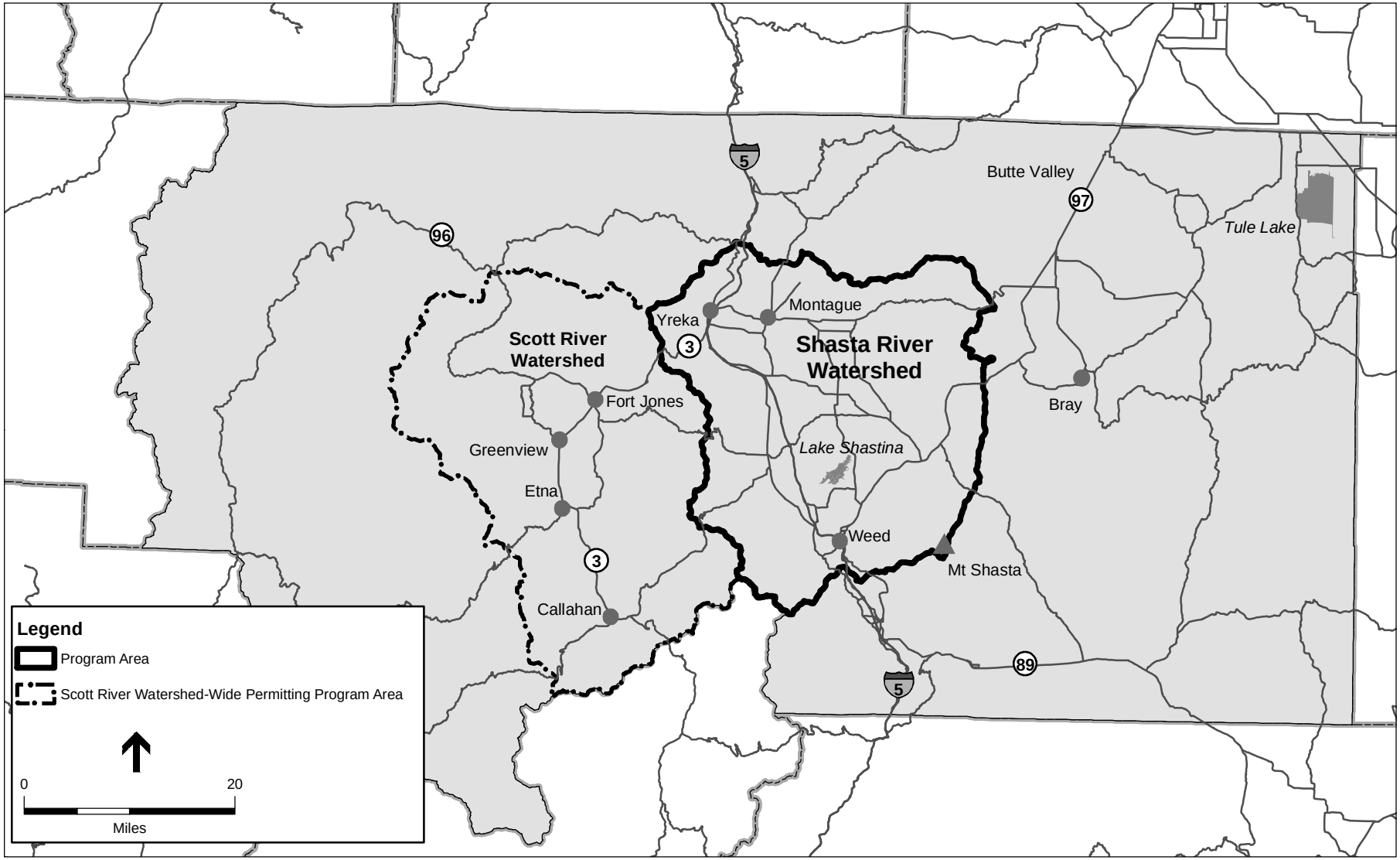
S.2 Background

In early 2002, the Salmon and Steelhead Recovery Coalition petitioned the California Fish and Game Commission (Commission) to list coho salmon (*Oncorhynchus kisutch*), north of San Francisco as an endangered species under the California Endangered Species Act (CESA) (Fish and Game Code, § 2050 *et seq.*).[2] In response, CDFG issued a coho salmon status report to the Commission, recommending that coho salmon from San Francisco north to Punta Gorda be listed as endangered, and that coho salmon from Punta Gorda north to the Oregon border be listed as threatened pursuant to CESA (CDFG, 2004). The Commission found that coho salmon warranted listing in accordance with CDFG's recommendations. Also, the Commission required CDFG to prepare a recovery strategy for coho salmon prior to their formal listing.

1 The CEQA *Guidelines* are the regulations that implement CEQA. They are in California Code of Regulations, title 14, § 15000 *et seq*. and cited as "CEQA *Guidelines*" in this document.
2 The symbol "§" represents "section," in reference to specific provisions in statutes and regulations.



SOURCE: ESRI, 2006; ESA 2007

Shasta River Watershed-Wide Permitting Program . 206063

Figure S-1
Program Area

In February 2004, the Commission adopted the Recovery Strategy for California Coho Salmon (Coho Recovery Strategy). The Coho Recovery Strategy emphasizes cooperation and collaboration, and recognizes the need for funding, public and private support for restoration actions, and maintaining a balance between regulatory and voluntary efforts to meet the goals of the Coho Recovery Strategy. The Shasta and Scott River watersheds were identified for a pilot program to address coho salmon recovery issues and solutions related to agriculture and agricultural water use in Siskiyou County. On March 30, 2005, the Commission formally designated coho salmon within the Program Area as a threatened species pursuant to CESA.[3] As a result, coho salmon within the Program Area may not be taken[4] except as authorized by CDFG in accordance with CESA.

As part of its efforts to develop the Coho Recovery Strategy, CDFG convened the Shasta-Scott Coho Recovery Team which, in addition to identifying recommendations for the pilot program, identified the need to develop a programmatic implementation framework that works toward the recovery of coho salmon, while providing authorization for the take coho salmon incidental to otherwise lawful routine agricultural activities in the Shasta and Scott River watersheds. The avoidance, minimization, and selected mitigation measures included in the proposed incidental take permit (ITP) for the Program, and the sub-permits that will be issued in accordance with the ITP, are consistent with the recovery tasks identified in the Shasta-Scott Pilot Program in the Coho Recovery Strategy.

S.3 Summary Program Description

CDFG and SVRCD have worked together to develop the Program for the Shasta River watershed. On March 29, 2005, SVRCD submitted an application to CDFG for a watershed-wide ITP pursuant to California Fish and Game Code, § 2081 (b) and (c).[5] In addition, on April 1, 2005**,** SVRCD submitted to CDFG an application for a streambed alteration agreement (SAA) pursuant to Fish and Game Code, § 1602, also referred to as a "notification." In response to the application, CDFG in cooperation with SVRCD prepared the ITP and SAA Memorandum of Understanding (MOU) and Master List of Terms and Conditions (MLTC) between CDFG and SVRCD (Appendices A and B, respectively).

The Program is intended to facilitate compliance by Agricultural Operators, California Department of Water Resources (DWR), and SVRCD with CESA and Fish and Game Code, § 1602 by streamlining the process to obtain take authorization and SAAs for any activity the Program covers, referred to as a "Covered Activity."[6] Under the Program, SVRCD will implement key coho salmon recovery projects identified in the Coho Recovery Strategy. Hence, the Program will also further the objectives of that strategy.

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3 Coho salmon north of Punta Gorda are within the Southern Oregon-Northern California Coast (SONCC) Coho Evolutionarily Significant Unit (ESU).

4 "'Take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (Fish and Game Code, § 86).

5 CDFG deemed SVRCD's ITP application complete on April 28, 2005.

6 Covered Activities are described in Chapter 2 and Appendices A and B.

The Program consists of:

- **Watershed-wide Streambed Alteration Agreement Program (SAA Program)**

  The SAA component of the Program will consist of separate SAAs issued by CDFG to SVRCD and each Agricultural Operator. CDFG will include in each SAA the applicable terms and conditions from the MLTC developed as part of the Program. The terms and conditions protect existing fish and wildlife resources that the Covered Activity or Activities could substantially adversely affect. The MLTC will be an attachment to the MOU between CDFG and SVRCD that describes their roles and responsibilities in regard to the SAA component of the Program.

- **Watershed-wide Incidental Take Authorization for Coho Salmon**

  CDFG will issue an ITP to SVRCD in accordance with Fish and Game Code, § 2081(b) and (c) to provide take authorization in the course of implementing coho salmon restoration projects that are part of the Program. As mentioned above, the restoration projects implement certain tasks identified in the Coho Recovery Strategy and at the same time fully mitigate any take of coho salmon that may occur incidental to conducting a Covered Activity, as CESA requires. CDFG will issue separate take authorization to each Agricultural Operator who enrolls in the Program and DWR in the form of a "sub-permit." The Program uses the term "sub-permit" because each one will be based on SVRCD's ITP, but will still be enforceable as a "stand alone" permit. The separate obligations SVRCD will have under its ITP and those the "sub-permittees" will have under their sub-permits are discussed in Chapter 2, Project Description.

- **Monitoring Program**

  The ITP will require SVRCD to establish a program to determine whether or not Agricultural Operators are fulfilling the terms and conditions required by their sub-permits, and to determine the effectiveness of the conditions in the ITP and sub-permits to avoid, minimize, and fully mitigate the incidental take of coho salmon in the Program Area.

Each of these components is described in greater detail in Chapter 2, Project Description.

CDFG and the Siskiyou Resource Conservation District have developed a watershed-wide permitting program for the Scott River watershed similar to the Program for the Shasta River watershed. CDFG is conducting a separate environmental review of that Program under CEQA. However, the potential for cumulative effects of the two programs combined is considered in Chapter 4.

Program Timeline

The term of the ITP will be ten years. During the first five years of the Program, the original term of any SAA CDFG issues under the Program will be five years. CDFG may extend the term one time for a period of up to five years if the SAA holder requests an extension prior to the SAA's expiration. All SAAs issued or extended after the first five years of the Program will expire on the expiration date of the ITP (i.e., the expiration date of the Program).

S.4 Summary of Impacts

Table S-1, at the end of this Chapter presents a summary of the impacts and mitigation measures identified for the Program. The complete impact statements and mitigation measures are presented in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, and Chapter 4, Cumulative Effects and Other Required Topics. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts. These criteria are presented in the appropriate sections of Chapters 3 and 4. Significant impacts are adverse environmental impacts that meet or exceed the significance thresholds; less-than-significant impacts are impacts which do not exceed the significance thresholds. Table S-1 indicates the measures that will be implemented to avoid, minimize, or otherwise reduce (i.e., mitigate) significant impacts, and shows the level of significance after mitigation.

S.5 Summary of Alternatives

Alternatives to the Program are described in detail in Chapter 5. The potential impacts of each Alternative are compared with those of the Program. The following summarizes the description and conclusions regarding each Alternative.

No Program Alternative

Under the No Program Alternative, CDFG would not issue a watershed-wide ITP or enter into a watershed-wide SAA MOU and MLTC. Instead, SVRCD, DWR, and each Agricultural Operator would need to comply with Fish and Game Code, § 1600 *et seq.* and CESA on an individual basis. CDFG would prepare individual ITPs and SAAs as it received notifications and ITP applications. Under this approach, CDFG would need to conduct an appropriate level of CEQA review prior to issuing each individual ITP and SAA.

Individual applicants would be responsible for reimbursing CDFG for the cost of preparing the CEQA document for their ITPs and SAAs. The time required to prepare individual CEQA documents for a large number of agricultural diversions in the Shasta River watershed could cause delays and disruptions for Agricultural Operators. It is likely that many Agricultural Operators could not afford or would choose not to go through an individual permitting process, resulting in some Agricultural Operators operating either out of compliance with Fish and Game Code, § 1600 *et seq*. and CESA or terminating their usual operations.

Although the implementation of the No Program Alternative would meet several of the stated objectives of the Program (see Table 5-2 in Chapter 5), it would not be as effective or efficient at bringing existing agricultural water diverters into compliance with Fish and Game Code, § 1600 *et seq.* and CESA. Most importantly, the No Program Alternative would be less effective at accomplishing or implementing mitigation measures identified in the ITP, accomplishing watershed-wide coordination and implementation of selected key coho salmon recovery tasks, and would not be consistent with commitments identified in the Coho Recovery Strategy.

Instream Flow Alternative

The Instream Flow Alternative would include the Program as proposed and also include the development of surface-water storage reservoirs to capture winter runoff. The stored water would be used to benefit the cold water fisheries by increasing streamflow as necessary to assist fish migration, increase rearing habitat, maintain cooler water temperatures, and improve the potential for riparian vegetation survival. All of these issues are identified in the Limiting Factors Analysis in Chapter 3.3, Biological Resources: Fisheries and Aquatic Habitat, as major factors limiting coho salmon production in the Shasta River watershed. Where practical, water may be piped or pumped from reservoirs directly into existing water conveyance systems in exchange for reductions in the volume of water diverted from the Shasta River and tributaries. The stored water would not be used to increase the existing irrigated acreage or allow for additional water to be diverted for agricultural purposes.

The Program already contains several provisions to increase instream flows, including SVRCD's ITP Flow Enhancement Mitigation Obligation (Article XIII.E.2(a)), Additional SVRCD and Sub-Permittee Avoidance and Minimization Obligation A: Water Management (Article XV), and MLTC Conditions 25 (bypass flows at diversions).

The Shasta-Scott Pilot Program of the Coho Recovery Strategy contains additional recommendations for "water augmentation" actions for the Shasta River watershed, including the following:

- If feasible, construct large (off-stream) surface-water storage reservoirs;
- If feasible, raise the level of existing small lakes or create storage using small off-stream reservoirs rather than one large reservoir; and
- If legal and feasible, create a new diversion from the Klamath River above Irongate Dam to the Shasta Valley, to provide irrigation water to the Shasta Valley and reduce local surface water diversions and groundwater pumping.

The Instream Flow Alternative would be identical to the Program except that it would also include the additional measures from the Coho Recovery Strategy listed above. Specifically, this alternative would involve implementing those Coho Recovery Strategy recommendations regarding water augmentation which are found to be feasible and appropriate. While no single alternative water supply may be sufficient to result in significant gains in instream flows, a combination of the potential sources discussed above may provide for more suitable water flows and temperatures for rearing coho during the summer and fall months. Furthermore, until the studies are conducted to determine the feasibility of the various measures considered for development of new water supplies, the type and extent of physical impacts of this alternative cannot be determined. Therefore, the analysis in Chapter 5 assumes that all of the additional measures listed above would be found to be feasible and appropriate, and would be implemented under this alternative in addition to all of the flow enhancement provisions of the Program as proposed.

Under the Instream Flow Alternative, all of the objectives of the Program would be met and, if feasible, water augmentation measures identified in the Coho Recovery Strategy would be implemented. Where the potential for take of coho salmon still existed, such as ongoing surface water diversion and other agricultural activities and restoration actions undertaken by SVRCD, ITPs and SAAs still would be required. As discussed in Chapter 5, impacts from this alternative, particularly those associated with reservoir and Klamath pipeline construction would be greater than those of the Program.

Parks Creek - Upper Shasta River Fish Bypass Channel Alternative

This alternative would add to the Program the additional element of fish passage to the Shasta River above Lake Shastina. Under this alternative, the Montague Water Conservation District (MWCD) would be required to work with CDFG and other agencies and, if necessary, private landowners, to construct a fish bypass channel from Parks Creek to the Shasta River above the lake. The intent of this alternative is to provide a means for coho salmon and other anadromous fish to reach the upper Shasta River, while avoiding the technical and biological issues associated with providing fish passage at Dwinnell Dam.

The bypass channel could be in the vicinity and upstream of the existing Parks Creek diversion operated by MWCD, but would flow in the opposite direction. The Parks Creek Diversion flows from Parks Creek into the Shasta River; the fish bypass channel would flow from the Shasta River into Parks Creek. The channel would be operated during spawning migration and smolt out-migration, i.e., approximately October 1 to June 1. During spawning migration coho salmon and other anadromous species could migrate up Parks Creek to the point where the bypass channel would enter Parks Creek as a tributary. Fish would have the opportunity to continue up Parks Creek, or into the bypass channel and thence into the upper Shasta River. During smolt out-migration, fish would travel down the bypass channel into Parks Creek, and from there to the mainstem Shasta River below Dwinnell Dam. It would be necessary to place fish screens on the mainstem Shasta just downstream of the bypass channel to prevent smolts from entering Lake Shastina, and to prevent spawners from straying downstream. Assuming the channel would enter Parks Creek above the existing diversion, a fish screen would be necessary on the Parks Creek diversion to prevent smolts from returning to the Shasta River. MWCD is currently investigating the feasibility of installing a fish screen at this location. A preliminary conceptual alignment for the Parks Creek-Upper Shasta River Fish Bypass Channel is shown in Figure 5-1 in Chapter 5. In this figure, the channel crosses Interstate 5 at an existing underpass (at the Edgewood-Gazelle exit off of Interstate-5) and continues along Old Highway 99 for most of its length.

A determination of the technical feasibility of a Parks Creek-Upper Shasta River Fish Bypass Channel is beyond the scope of this Draft EIR. Preliminarily, there appear to be two major technical issues: 1) maintenance of an adequate flow through the channel during the fall spawning migration to attract fish and to sustain adequate conditions for fish survival and passage within the channel itself; and 2) screening both the mainstem Shasta below the bypass channel and also the existing Parks Creek diversion channel. In addition, this alternative would require

establishment of a right-of-way for the channel; the land through which the by-pass would flow is in both public and private ownership. While these are potentially substantial impediments to the implementation of this alternative, they do not necessarily render it infeasible. While this alternative could affect existing water rights, it is assumed that water diverted out of the mainstem Shasta into Parks Creek would be diverted back to the mainstem Shasta through the existing diversion channel.

Because the Parks Creek-Upper Shasta River Fish Bypass Alternative would simply add a new element to the Program (i.e., a bypass channel), it would meet the same objectives as the Program, including reducing take while allowing for the continuation of agricultural operations. In addition, if the technical and legal hurdles could be overcome to implement this alternative, it would likely have a substantially greater benefit for coho salmon and other native fisheries in the Shasta River watershed by restoring access to habitat currently unavailable due to Dwinnell Dam and Lake Shastina.

These alternatives, along with seven other alternatives considered but rejected, are discussed further in Chapter 5, Analysis of Alternatives.

Environmentally Superior Alternative

As part of evaluation and comparison of alternatives, the CEQA *Guidelines* require that if the "no project" alternative is identified as the environmentally superior alternative, the EIR must also identify the environmentally superior alternative among the other alternatives (CEQA *Guidelines,* § 15126.6(e)(2)). The No Program Alternative is not identified in this Draft EIR as the environmentally superior alternative and, as a result, no environmentally superior alternative is identified. However, for the reasons highlighted in chapter 5, Alternatives to the Program, CDFG generally believes the Program is environmentally superior to the alternatives considered here.

Program Alternatives Considered and Rejected

CDFG considered and rejected seven other possible alternatives, as follows: 1) Rejected Alternative 1 – Consistency Determination; 2) Rejected Alternative 2 - Adjudication of Water Rights; 3) Rejected Alternative 3 – Hatcheries; 4) Rejected Alternative 4 – Expanded Program Area; 5) Rejected Alternative 5 – Trap and Truck; 6) Rejected Alternative 6 – Expanded Range of Covered Activities; and Rejected Alternative 7 – Dwinnell Dam Removal. The rejected alternatives and the specific reason they were rejected are discussed in Chapter 5.

S.6 Areas of Controversy

In the fall of 2006, CDFG prepared and released a Notice of Preparation (NOP) (Appendix C) of a Draft EIR and an initial study (Appendix D). Comments submitted during the NOP review period raised issues on the scope and content of the Draft EIR, including:

- alternatives to the Program such as re-adjudication of water rights, and removal of Dwinnell Dam;

- determination of the proper baseline for the environmental analysis;
- information gaps on minimum flow needs for coho salmon;
- information gaps on inter-connectivity between groundwater and surface water; and
- socio-economic effects of Program requirements on farming and ranching in the Shasta Valley.

Comments submitted during the NOP comment period are provided in Appendix E, Scoping Comments, and are addressed throughout this document.

TABLE S-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.1 Land Use and Agriculture		
3.1-1: The Program could result in the conversion of agricultural land within the Shasta River watershed to non-agricultural uses (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.2 Geomorphology, Hydrology, and Water Quality		
3.2-1: Certain construction activities performed under the Program could result in increased erosion and sedimentation and/or pollutant (e.g., fuels and lubricants) loading to surface waterways, which could increase turbidity, suspended solids, settleable solids, or otherwise decrease water quality in surface waterways (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.2-1a:** ITP General Condition (b) (Article XIII.E.1) requires the immediate containment and clean-up of any fuel, lubricants, or other hazardous materials that leak or spill during a Covered Activity. **3.2-1b:** ITP Additional SVRCD and Sub-Permittee Avoidance and Minimization Obligation F. – Push-Up Dams and Obligation G. - Other Temporary Diversion Structures (Article XV) requires preparation and adoption of a set of Best Management Practices (BMP) governing the construction, operation, and removal of push-up dams and other temporary diversion structures other than push-up dams. **3.2-1c:** The MLTC includes the following conditions which will reduce the potential for construction-related impacts to water quality: A. Water Diversions: Conditions 31, 34, and 39; B. Instream Structures: Conditions 58-60; C. Use of Vehicles in Wetted Portions of Streams: Conditions 65-67; D. Pollution Control: Conditions 68-75; E. Erosion and Sediment Control: Conditions 76-84; F. Dewatering: Conditions 89-92, 94, 96-98; and G. Ground-Disturbing Activities: Condition 108. ***Mitigation Measures Identified in this Draft EIR*** **3.2-1d:** The season for instream construction activities and equipment operations shall be limited to the period from July 1 to October 15. If weather conditions permit and the stream is dry or at its lowest flow, instream construction activities and equipment operations may continue after October 15, provided a written request is made to CDFG at least five days before the proposed work period variance. Written approval from CDFG for the proposed work period	Less-than-significant

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.2 Geomorphology, Hydrology, and Water Quality (cont.)		
3.2-1 (cont.)	variance must be received by the SVRCD or Agricultural Operator prior to the start or continuation of work after October 15. If work is performed after October 15 as provided above, the SVRCD or Agricultural Operator will do all of the following: A. Monitor the 72 hour forecast from the National Weather Service. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, the work shall cease. B. Stage erosion and sediment control materials at the work site. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, implement erosion and sediment control measures.	
3.2-2: Certain instream structures proposed to improve fish habitat as part of the Program would be installed within a flood hazard area and could impede or redirect flood flows (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.2-3: Installation and operation of instream structures permitted under the Program could alter channel stability and degrade water quality by increasing turbidity downstream (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.2-3a:** ITP Additional SVRCD and Sub-Permittee Avoidance and Minimization Obligation D.4. - Livestock and Vehicle Crossings (Article XV) requires annual monitoring of all livestock and vehicle crossings installed under the Program. If the crossing is exacerbating erosion and contributing fine sediment to the stream, SVRCD shall note that in its Annual Report and the sub-permittee shall be responsible for remediation of the problem. **3.2-3b:** MLTC Conditions 35, 41, 45, and 53 would ensure that boulder weirs are sized to resist wash-out and do not create lifts in the stream channel that exceed twelve (12) inches, and that instream structures shall be designed and implemented in accordance with CDFG's Salmonid Stream Habitat Restoration Manual. ***Mitigation Measures Identified in this Draft EIR*** **3.2-3c:** CDFG and SVRCD shall establish performance criteria for new and replacement instream structures including boulder weirs, angular rock for bank protection, bioengineered habitat structures, large woody debris, fish ladders, and other channel restoration or protection measures, The performance criteria shall include, but not be limited to, the following:	Less-than-significant

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.2 Geomorphology, Hydrology, and Water Quality (cont.)		
3.2-3 (cont.)	• Sediment deposition upstream and erosion/scour and subsequent deposition downstream of these instream structures, during bankfull flow conditions, would be avoided to the extent feasible, unless the intent of the particular structure is to facilitate such processes (e.g., gravel trapping); • Instream structures shall not alter channel hydraulics such that the project reach can no longer move the imposed sediment load (e.g., upstream supply) with the available range of sediment-transporting flows; this criterion shall focus on the transport of bed-material load; • Instream structures shall not lead to a permanent increase in the downstream transport of sediments that is outside the historical range of sediment flux; and • Instream structures shall be designed to withstand a given range of flows (e.g., some structures are permanent, such as fish ladders, while other structures are "semi-permanent," such as placement of LWD). The range of flows that a particular structure will be designed to handle shall be quantified and rationalized. Engineered structures such as fish ladders, or boulder weirs designed for grade control or for fish passage in proximity of a water diversion, require design and assessment by a qualified hydrologist, geologist, engineer, or other similarly qualified individual using methods and levels of rigor that have been established in the engineering or scientific community. Based on the assessment, if the proposed structure would fail to meet the performance criteria, then the structure shall not be installed within that particular reach. The performance criteria shall be included in the SVRCD ITP Monitoring and Adaptive Management Plan (ITP Attachment 3) and their verification and effectiveness shall be included in the Monitoring (ITP Covered Activity 13) or Research (ITP Covered Activity 14) activities of the Program.	
3.2-4: The Program could result in an increase in the extraction of groundwater, which could contribute to decreased baseflows and increased ambient water temperatures in the Shasta River and its tributaries (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.3 Biological Resources: Fisheries and Aquatic Habitat		
3.3-1: Construction, maintenance, and other instream activities associated with various Covered Activities may result in impacts to fisheries resources and their habitat (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.3-1a:** Implementation of ITP General Conditions (g) Instream work period, (h) Instream equipment work period, and (i) Compliance with Fish and Game Code, § 1600 *et seq.* (Article XIII.E.1) would avoid or minimize potential direct and indirect impacts to coho salmon and CDFG fish species of special concern resulting from instream construction and maintenance activities. **3.3-1b:** Implementation of numerous applicable conditions in the MLTC would further avoid or minimize potential direct and indirect impacts to coho salmon and CDFG fish species of special concern resulting from instream and upland construction and maintenance activities. ***Mitigation Measures Identified in this Draft EIR*** **3.3-1c:** ITP General Conditions (g) and (h) (Article XIII.E.1) limit the season for instream equipment operations and work related to structural restoration projects to the period from July 1 to October 31. Similarly, ITP Additional Avoidance and Minimization Measure D (Livestock and Vehicle Crossings) (Article XV.D.) and conditions in the MLTC limit the use of stream crossings to the same period. However, based on documented adult coho salmon migration timing in the Shasta River (Hampton, 2006), coho salmon may enter the Shasta River prior to October 31. Furthermore, the Chinook salmon spawning season occurs even earlier in the season, depending on streamflows. Therefore, as specified under Mitigation Measure 3.2-1d (Chapter 3.2 Geomorphology, Hydrology, and Water Quality) the season for instream construction activities, equipment operations, and stream crossing utilization shall be limited to the period of July 1 through October 15. If weather conditions permit and the stream is dry or at its lowest flow, instream construction activities and equipment operations may continue after October 15, provided a written request is made to CDFG at least five days before the proposed work period variance. Written approval from CDFG for the proposed work period variance must be received by SVRCD or Agricultural Operator prior to the start or continuation of work after October 15. If work is performed after October 15 as provided above, SVRCD or Agricultural Operator will do all of the following: • Monitor the 72 hour forecast from the National Weather Service. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, the work shall cease.	Less-than-significant

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.3 Biological Resources: Fisheries and Aquatic Habitat (cont.)		
3.3-1 (cont.)	• Stage erosion and sediment control materials at the work site. When there is a forecast of more than 30 percent chance of rain, or at the onset of any precipitation, implement erosion and sediment control measures.	
3.3-2: Increased extraction of groundwater could contribute to decreased baseflows and increased ambient water temperatures in the Shasta River and its tributaries, thereby impacting coldwater fish habitat (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.4 Biological Resources: Botany, Wildlife, and Wetlands		
3.4-1: The Program could result in impacts to special-status plant or animal species (Significant).	***Mitigation Measures Proposed as Part of the Program***	
	3.4-1a: ITP General Conditions (g) and (h) (Article XIII.E.1) stipulate that instream work on structural restoration projects and instream equipment operations shall occur from July 1 to October 31. This restricts noise and other sources of disturbance during most of the nesting season for special-status riparian birds.	Less than significant
	3.4-1b: ITP Additional SVRCD and Sub-Permittee Avoidance and Minimization Obligation B.1 (Article XV) requires that water removed directly from the stream by means of a pump shall have inlets properly screened per CDFG/National Marine Fisheries Service (NMFS) fish screen standards (NMFS, 1997). These standards specify a mesh size that would avoid entrainment of special-status species in pumps.	
	3.4-1c: Master List of Terms and Conditions (MLTC) Condition 100 stipulates that, prior to ground-disturbing activities, work sites shall be surveyed for special-status plant species by a qualified botanist. Special-status plant surveys shall be conducted following the *Guidelines for Assessing Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities* (CDFG, 2000). The survey report, including the methodology and survey findings, shall be provided to CDFG for review and approval prior to any ground-disturbing activities. MLTC condition 101 further states that if any special-status plant species are identified at a work site, CDFG shall identify one or more of the following protective measures, but not limited to these measures, to be implemented at the project site before work may proceed:	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.4 Biological Resources: Botany, Wildlife, and Wetlands (cont.)		
3.4-1 (cont.)	• Fencing to prevent accidental disturbance of special-status plants during construction; • On-site monitoring by a qualified botanist during construction to assure that special-status plants are not disturbed; and/or • Redesign of proposed work to avoid disturbance of special-status plant species. ***Mitigation Measures Identified in this Draft EIR*** **3.4-1d:** The permissible work window for individual work sites shall be further constrained as necessary to avoid the nesting or breeding seasons of special-status birds and terrestrial animals for which CDFG determines impacts could be significant. At most sites with the potential for significant impacts to nesting special-status birds work shall be conditioned to start after July 31 when the young have fledged, potential impacts will be avoided, and no surveys will be required. Where work after July 31 would still have the potential to significantly impact nesting special-status birds work shall not begin until the potential for impacts no longer exists. CDFG may advance the window at individual work sites if: • There is no suitable habitat present. "Suitable habitat" in this sense varies between species and would be determined by CDFG, for example for the willow flycatcher in accordance with Figura (2007); or, • Surveys determine nesting birds will not be affected, either because the animals are not present or the nests are safely distant or otherwise screened from the activity. In addition, to prevent impacts to bank swallow nesting areas, no fencing or planting action will be allowed to change the cross-sectional profile of the stream (e.g., lay a cutbank back to an angle of repose for riparian planting) until after a survey is conducted that establishes that bank swallows are not using the area to be affected. No area supporting bank swallows shall be manipulated in any way. To avoid potential impacts to sandhill crane nesting and rearing activities, surveys for active nests shall be performed by a qualified biologist prior to the start of a Covered Activity when a known sandhill crane nesting territory is located within 0.5 mile of the project site and the activity will occur during the typical nesting and rearing	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.4 Biological Resources: Botany, Wildlife, and Wetlands (cont.)		
3.4-1 (cont.)	season (March 1 to August 15). If active nests are found, a no-disturbance buffer radius of up to 0.5 mile will be required around the nest. The actual size of the buffer may be modified based on an evaluation by a qualified biologist of the sensitivity of the birds to the level of project disturbance. The no-disturbance buffer may be lifted prior to August 15, if it is determined safe to do so by a qualified biologist and approved by CDFG. Any reduction in the 0.5 mile buffer radius will be approved in writing by CDFG. To avoid potential impacts to Swainson's hawk nesting and rearing activities, surveys for active nests within 0.5 miles of a project site shall be performed by a qualified biologist, when a Covered Activity will occur in known Swainson's hawk nesting territory during the typical nesting and rearing season (March 15 to August 15). If one or more active Swainson's hawk nests are present within the 0.5 mile survey area, the active nest(s) shall be monitored by a qualified biologist prior to and during project activities. If, in the professional opinion of the qualified biologist, the nesting pair's behavior suggests agitation or disturbance by project activities, all activities in the area shall immediately stop pending consultation with CDFG. Following a review of the breeding pair's behavior, both as reported by the biologist and independently verified by CDFG, CDFG will determine whether the Covered Activity may continue during the nesting season and, if so, the conditions under which they may continue. The no-disturbance buffer may be lifted prior to August 15, if it is determined safe to do so by a qualified biologist and approved by CDFG. Any reduction in the 0.5 mile buffer radius will be approved in writing by CDFG. If, during the non-breeding season, a Swainson's hawk nest is present in the project area and has been used within the past breeding season, the nest site shall not be disturbed pending consultation with CDFG. To avoid potential impacts to willow flycatchers during the typical nesting and rearing season (May 15 to August 30), no project related activities shall occur within 300 feet of potential nesting habitat. A Covered Activity may be performed within the 300-foot buffer zone if surveys for active nests are performed prior to the start of the Covered Activity and no active nests are present.	
3.4-2: Construction of new and maintenance and repair of existing stream access and crossings could result in impacts to special-status plant or animal species (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.4 Biological Resources: Botany, Wildlife, and Wetlands (cont.)		
3.4-3: ITP Covered Activity 10, the grazing of livestock within the bed, bank, or channel of a stream different from current operations (i.e., not part of baseline conditions), could impact sensitive habitat and special-status species (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.4-3a:** ITP Additional SVRCD and Sub-Permittee Avoidance and Minimization Obligation E.5 (Article XV) stipulates that livestock grazing be done in accordance with a grazing management plan prepared by the sub-permittee and approved by CDFG. The grazing management plan shall address the timing, duration, and intensity of livestock grazing within the riparian zone and shall explain how the proposed management plan will result in improved riparian function and enhanced aquatic habitat. ***Mitigation Measures Identified in this Draft EIR*** **3.4-3b:** The ITP stipulation noted in Mitigation Measure 3.4-3a does not constitute complete mitigation because the actual restriction is not sufficiently specific. Mitigation Measure 3.4-3b clarifies "intensity" to stipulate the number of livestock allowable per unit area (i.e., stocking rate). Grazing plans completed in accordance with the ITP shall include, in addition to other specified requirements, a means to prohibit livestock from entering live streams.	Less than significant.
3.4-4: ITP Covered Activities may result in incidental discharge of fill into wetlands under federal jurisdiction causing temporary direct and indirect impacts to wetland function (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.4-5: Water efficiency measures required by the Program could in some instances significantly impact nesting special-status birds (Significant).	***Mitigation Measures Proposed as Part of the Program*** None specified. ***Mitigation Measures Identified in this Draft EIR*** **3.4-5:** Where piping or lining of a diversion ditch is performed as a water efficiency measure under the Program, any required woody vegetation removal shall be considered an activity subject to the same mitigation measure as prescribed for other riparian impacts (Mitigation Measure 3.4-1d).	Less than significant.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.5 Cultural Resources		
3.5-1: Impacts to known and unknown cultural resources may result either directly or indirectly during the implementation and operational phases of a Covered Activity under the Program (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.5-1a:** Master List of Terms and Conditions (MLTC) Condition 102 states that prior to any ground-disturbing activities, the responsible party shall contract with at least one qualified archaeologist and paleontologist to complete cultural and paleontological resource surveys, to identify any previously recorded and unknown historical resources, unique archeological resources, or unique paleontological resources, using standard survey protocols. The survey report must be provided to the California Department of Fish and Game (CDFG) for review and approval prior to any ground-disturbing activities. **3.5-1b:** MLTC Condition 103 notes that if any potentially significant historical resources, unique archaeological resources and/or paleontological resources are identified at the work site, CDFG shall consult with the consulting archaeologist or paleontologist to identify one or more of the following protective measures, or site specific measures, to be implemented at the project site before work may proceed: • Redesign of proposed work to avoid disturbance of cultural or paleontological resources; • Fencing to prevent accidental disturbance of cultural or paleontological resources during construction; and/or • On-site monitoring by a cultural and/or paleontological resource professional during construction to assure that resources are not disturbed. **3.5-1c:** MLTC Condition 104 states that the responsible party shall report any previously unknown historical resources, unique archaeological resources, and paleontological remains discovered at the site to CDFG and other appropriate agencies. **3.5-1d:** MLTC Condition 105 states that if cultural resources such as lithic debitage, groundstone, historic debris, building foundations, or bone are discovered during ground-disturbing activities, work shall cease within 20 meters (66 feet) of the discovery. Furthermore, work near archaeological finds shall not resume until a professional archaeologist has evaluated the materials and offered recommendations for further action.	Less than significant level.

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.5 Cultural Resources (cont.)		
3.5-1 (cont.)	**3.5-1e:** MLTC Condition 108 states that the responsible party shall instruct all persons who will be completing any ground-disturbing activity at a worksite to comply with conditions set forth in the SAA MOU and to inspect each work site before, during and after completion of ground-disturbing activity at the work site. ***Mitigation Measures Identified in this Draft EIR*** **3.5-1f:** Prior to carrying out MLTC Condition 102, a determination shall first be made as to whether the area has had an adequate archaeological survey by a professional archaeologist and whether any historic or prehistoric sites have been recorded within a ¼-mile radius of the project area. This records review may be conducted at NE/CHRIS on a case-by-case basis for each project. Alternatively, a professional archaeologist will be contracted to conduct a watershed-wide records search at NE/CHRIS and prepare a map showing the previous surveys and recorded sites. An update of this information would then be prepared at least every two years. This map, which will show the locations of archaeological sites, would be considered confidential and made available only to individuals on an as-needed basis. **3.5-1g:** If none of the protective measures described in MLTC Condition 103 can be implemented, then an archaeological data recovery program (ADRP) shall be implemented, unless the professional archaeologist determines that the archaeological resource is of greater interpretive use than research significance and that interpretive use of the resource is feasible. The project archaeologist and CDFG shall meet and consult to determine the scope of the ADRP, and the project archaeologist shall prepare a research design for the project which shall be submitted to CDFG for review and approval. This document shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The document will specifically identify the scientific/historical research questions being asked, the archaeological resources' expected data classes, and how the expected data classes would address the applicable research questions. Following approval of the plan by CDFG, the ADRP shall be implemented and a report prepared. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.5 Cultural Resources (cont.)		
3.5-1 (cont.)	are practical. All significant cultural materials recovered shall be, as necessary, subject to scientific analysis, professional museum curation, and a report shall be prepared by a qualified archaeologist according to current professional standards. **3.5-1h:** If built historical resources (e.g., structures, buildings, or similar) that qualify for listing in the California Register of Historic Resources (CEQA *Guidelines,* § 15064.5)) are identified through the implementation of measure MLTC Condition 102 and cannot be avoided through implementation of measure MLTC Condition 103, SVRCD or the Agricultural Operator will comply with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards) which would, in accordance with CEQA *Guidelines,* § 15064.5(b)(3), reduce potential impacts associated with the alteration or modification of a historical resource (including historic districts and individually eligible resources) to a less-than-significant level. If both avoidance and compliance with the Standards are infeasible, the Covered Activity in question shall be changed or not pursued, such that the historical resource is not destroyed or altered. Activities that would result in such disturbance are not authorized under the Program because SVRCD or the Agricultural Operator would be unable to mitigate the impact to a point where clearly no significant effect on the environment would occur.	
3.5-2: Covered Activities could adversely affect known or unknown paleontological resources (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.5-2a:** Implement **Mitigation Measures 3.5-1a – 3.5-1e** (MLTC Conditions 102, 103, 104,105, and 108), as described above ***Mitigation Measures Identified in this Draft EIR*** **3.5-2b:** MLTC Condition 105 (see Mitigation Measure 3.5-1d) states that if cultural resources such as lithic debitage, groundstone, historic debris, building foundations, or bone are discovered during ground-disturbing activities, work shall cease within 20 meters (66 feet) of the discovery. Work near the archaeological finds shall not resume until a professional archaeologist has evaluated the materials and offered recommendations for further action. This measure does not, however, specify the criteria for protecting paleontological resources. Therefore, in the event of an unanticipated paleontological discovery during ground-disturbing activities, the following measure shall be implemented:	Less than significant

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.5 Cultural Resources (cont.)		
3.5-2 (cont.)	• Temporarily halt or divert work within 20 meters (66 feet) of the find until the discovery is examined by a qualified paleontologist (per Society of Vertebrate Paleontology standards (SVP, 1995 and SVP, 1996). • Document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines, § 15064.5. • Notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. • If CDFG determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and such plan shall be implemented. The plan shall be submitted to the CDFG for review and approval.	
3.5-3: Covered Activities could result in damage to previously unidentified human remains (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures are required.	
3.6 Hazards and Hazardous Materials		
3.6-1: Construction activities could result in discovery and release of previously unidentified hazardous materials into the environment (Significant).	***Mitigation Measures Proposed as Part of the Program*** **3.6-1a:** The Program's incidental take permit (ITP) General condition (b) (Article XIII.E.1) states that the Shasta Valley Resource Conservation District (SVRCD) "and any sub-permittee shall immediately stop, contain, and clean-up any fuel, lubricants, or other hazardous materials that leak or spill while engaged in a Covered Activity. SVRCD or the sub-permittee shall notify the Department immediately of any leak or spill of hazardous materials into a stream or in a place where it can pass into a stream. While engaged in a covered activity, SVRCD and all sub-permittees shall store and handle hazardous materials at least 150 feet away from the edge of mean high water elevation of any stream and properly dispose any unused or leftover hazardous materials offsite. Exceptions to this provision may be provided in individual sub-permits for pre-existing structures with adequate containment facilities." MLTC Conditions 68 through 75 of the Programs streambed alteration agreement Master List of Terms and Conditions (MLTC) contain similar provisions.	Less than significant

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.6 Hazards and Hazardous Materials (cont.)		
3.6-1 (cont.)	***Mitigation Measures Identified in this Draft EIR***	
	3.6-1b: SVRCD shall prepare a standard Hazardous Substance Discovery Plan that shall include provisions that would be implemented if any subsurface hazardous materials are encountered during construction. Provisions outlined in the Plan shall be followed by SVRCD and/or any sub-permittee and shall include immediately stopping work in a contaminated area and contacting appropriate resource agencies, including the California Department of Fish and Game's (CDFG) designated monitor, upon discovery of subsurface hazardous materials. The plan shall include the phone numbers of county and state agencies and primary, secondary, and final cleanup procedures. The Hazardous Substance Discovery Plan shall be submitted to CDFG for review and approval prior to the commencement of Program construction activities.	
3.6-2: Program construction activities could ignite dry vegetation and start a wildland fire (Significant).	***Mitigation Measures Proposed as Part of the Program***	
	No mitigation measures are included in the proposed MLTC or ITP.	Mitigation Measure 3.6.2 would reduce this impact to a less-than-significant level.
	Mitigation Measures Identified in This Draft EIR	
	3.6-2: Water tanks and/or fire extinguishers shall be sited at Covered Activity construction sites and shall be available for fire protection during the fire season (approximately late spring to early fall). All construction vehicles shall have fire suppression equipment and construction personnel shall be required to park vehicles away from dry vegetation. SVRCD and/or sub-permittees shall contact and coordinate with CDF to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks/fire extinguishers. SVRCD and/or sub-permittees shall submit verification of its consultation with CDF to the CDFG.	
3.7 Public Utilities, Service Systems, and Energy		
3.7-1: The Program could result in the modification or expansion of existing water supply systems (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.7-2: Construction activities could inadvertently contact underground utility lines and/or facilities during excavation and other ground disturbance, possibly leading to short-term utility service interruptions (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	
3.7-3: Replacement of gravity-based surface water diversions with diversions or wells utilizing pumps, would increase power consumption and air emissions (Less than Significant).	This potential impact was determined to be less than significant. No mitigation measures required.	

TABLE S-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE SHASTA RIVER WATERSHED-WIDE PERMITTING PROGRAM

Impacts	Mitigation Measures	Significance after Mitigation
3.7 Public Utilities, Service Systems, and Energy (cont.)		
3.7-4: Construction activities and water pumping associated with Covered Activities and ITP mitigation measures would generate greenhouse gas emissions, which would make a contribution to global warming (Less than Significant).	***Mitigation Measures Proposed as Part of the Program*** This potential impact was determined to be less than significant. No mitigation measures required. ***Mitigation Measures Identified in This Draft EIR*** The mitigation measures discussed below were identified as part of this Draft EIR. While these measures are not required to reduce this impact to less than significant, they are technically feasible. Still, CDFG does not have the statutory or regulatory authority to impose these requirements. As a result, they will only be implemented voluntarily or by another regulatory agency (e.g., CARB) that has the authority to require them, whether now or in the future. **3.7-4a:** Program participants are encouraged to fuel all diesel equipment, including pumps, vehicles, and construction equipment, with a minimum 20 percent biodiesel (maximum 80 percent conventional diesel) blend (B-20). B-20 biodiesel is currently available commercially in Siskiyou County.[7] A blend of 20 percent biodiesel will reduce CO_2 emissions by approximately 15 percent (USDOE, 2005), although with a slight increase in NOx (the increase in NOx emissions would not exceed significance thresholds established by SQAPCD – see the emissions calculations in the technical appendix to the Initial Study in Appendix D). **3.7-4b:** Renewable energy sources such as photovoltaic or wind power could be used to power some pumps installed to meet Program requirements for stockwatering and moving points of diversion downstream.	

[7] B-20 is currently available locally at Cross Petroleum, 1012 North Mount Shasta Boulevard, Mount Shasta, CA 96067.